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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Hitoshi Asahi

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EXAMINER

YEE, DEBORAH

ART UNIT

PAPER NUMBER

1793

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/582,830	<b>Applicant(s)</b> ASAHI ET AL.	
	<b>Examiner</b> Deborah Yee	<b>Art Unit</b> 1793	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 August 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 17, 2009 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 to 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,581,396 ("Mazuda") in view of CA 2,429,439 ("CA-439").

4. Mazuda in claims 1 to 16 of columns 11 to 14 and lines 1 to 4 of column 9 discloses a steel plate composition having constituents whose wt% ranges overlap those recited by the claims; and such overlap in wt% ranges establishes a prima facie case of obviousness because it would be obvious for one skilled in the art to select the claimed alloy wt% ranges over the broader disclosure of the prior art since the prior art teaches the same utility for line pipe ( see lines 17 to 21 of column 1) and similar

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properties of high strength and low-temperature toughness and an upper bainitic microstructure of not less than 70 vol.%. See MPEP 2144.05.

5. Even though the equations  $P\text{-value}$  and  $Ti-3.4(N)$  recited by the claims are not taught by Mazuda, such difference would not be a patentable merit because it has been well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553I.O.G., 177; 57 USPQ 117. Also in absence of evidence to the contrary, the selection of the proportion of elements would appear to require no more than routine investigation by those of ordinary skilled in the art to achieve high strength and low-temperature toughness. In the instant case, since the concentration of each element in prior art overlaps the claimed concentration of the corresponding element, then the claimed equations would have been expected to be met in prior art.

6. More specifically, steel example 2 in table 1 of columns 9-10 of Mazuda meets the claimed composition; and when calculated, has a  $P\text{-value} = 1.57$  outside the claimed  $P\text{-equation}$  range of 2.5 and 4.0 but satisfies the claimed equation  $Ti-3.4 = 0.012 > 0$ . Since Applicant has not demonstrated (e.g. by comparative test data) that a  $P\text{-value}$  of 2.5 to 4.0 is somehow critical and productive of new and unexpected results, then claims would not patentably distinguish over prior art. Moreover, Mazuda in columns 9 and 10 teaches by adding more 0.1 to 1% Ni, 0.1 to 0.6% Cu, 0.1 to 0.6%Cr, and 0.05 to 0.3% Mo to the general composition, then toughness, strength and/or highness can be enhanced. Therefore to add Ni, Cu, Cr and/Mo to prior art example 2

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would be obvious to further improve physical properties and raise the P-value to achieve essentially the same properties as present invention.

7. In regard to the method of making steel plate, Mazuda art on lines 1 to 11 of column 4 subjects steel plate to heating at 900 to 1000°C (within claimed temperature range of 1000 to 1250°C), effecting a rolling in the recrystallization area of austenite grains, effecting a sufficient reduction exceeding 60% (overlaps claimed reduction rate of not less 75%) in the non-recrystallization region of below 900°C and immediately after finishing the rolling at a temperature ranging between 20°C above the Ar3 transformation temperature and a temperature 10°C below the Ar3 transformation temperature effecting a cooling at 15 to 60°C/second (suggest claimed center plate cooling rate of 1 to 10°C/second) to obtain a fine upper bainite microstructure.

8. The prior art cooling rate of 15 to 60°C/second refers to surface temperature such that its cooling rate at center plate thickness would be lower and therefore suggest 1 to 10°C/second recited in Applicant's claim. Also a center plate thickness cooling rate of 1 to 10°C/second would be expected since a fine upper bainite microstructure is obtain which is the same result achieved by present invention process.

9. Mazuda on lines 17 to 20 of column 1 teaches using steel plate for making line pipes equivalent to seam welded pipe. The conventional method of making line pipe, similar to present invention, comprises the steps of subjecting plate to UO process rolling to form pipe, seam welding to join pipe edges and expanding to shape welded pipe as evident by CA-439, claim 15 on page 57; and therefore method would be obvious to apply to Mazuda plate when making line pipe.

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10. Even though prior art does not teach steel having the ratio  $(Hv-avep)/(Hv-M) = 0.8$  to  $0.9$ , the yield ratio in the direction of rolling  $(YS-Lp)/TS-Lp$  not greater than  $0.8$ , circumferential tensile strength  $TS-C$  between  $900$  and  $1100$  MPa, and the tensile strength in the longitudinal direction of line pipe not greater than  $0.95$  times the tensile strength in the circumferential direction as recited by one or more claims, such properties would be expected since composition and process of making are closely met and in absence of evidence to the contrary.

11. Claims 1 to 22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,634,988 ("Kurebayashi") in view of CA 2,429,439 ("CA-439") for the reasons stated in the previous office action dated March 13, 2009 and June 23, 2009.

### ***Response to Arguments***

12. Applicant's arguments filed August 17, 2009 have been fully considered but they are not persuasive.

13. Applicant argued that the steel of Kurebayashi contains  $0.6$  to  $2.0\%$  Si which is essential for improving fatigue strength. In comparison, present invention steel contains not more than  $0.6\%$  Si to achieve low-temperature toughness.

14. It is the Examiner's position that the prior art lower Si limit of  $0.6\%$  teaches present invention upper Si limit of  $0.6\%$ . Hence claims would not patentably distinguish over prior art.

15. Applicant's newly submitted claims 23 to 28 recite steel containing not more than  $0.28\%$  Si or no Si which would patentably distinguish over steel of Kurebayashi containing  $0.6$  to  $2.0\%$  Si.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on monday-friday 6:00 am-2:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Deborah Yee/  
Primary Examiner  
Art Unit 1793

/DY/